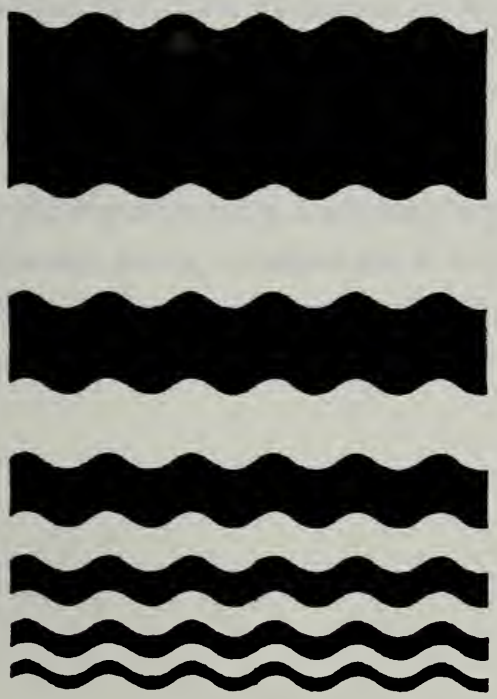
United States
Department of
Agriculture

Soil
Conservation
Service

# Water Quality and Quantity

## SCS Five-Year Plan of Operations

October 1, 1989 - September 30, 1994



United States Department of Agriculture
Soil Conservation Service
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# Foreword

In response to increasing national concern about nonpoint source impairment of water resources we are expanding the agency's capability in the areas of water quality and quantity. I firmly believe that our broad experience in water resource protection and management and our proven field delivery system will make a significant contribution toward resolving this national concern.

This 5-year plan sets out the direction and timetable that the Soil Conservation Service will follow in support of the President's water quality initiative. It is a guide for applying our existing programs and capabilities and for developing the additional expertise and technology that we need. Built into the plan are special new initiatives -- interagency initiatives -- involving selected agricultural watersheds and demonstration projects. Built in also is an appreciation of the heavy workload you already have in the field and of the flexibility that you need to do your job.

As we move forward in this important effort, I ask that you respond to the need for coordination with other agencies and organizations and to the considerations of the farm and ranch community that we serve. The partnership of SCS technical assistance and private agriculture ingenuity is a powerful force for the protection of the Nation's water resources.

WILSON SCALING
Chief
January 24, 1990

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# Contents

# Executive Summary

The Soil Conservation Service (SCS) is responding to an important issue in America's rural, metropolitan, and industrial communities: The quality of surface and ground water resources. Increasingly, public attention is on nonpoint sources of pollution such as urban runoff, agriculture, forestry, and other land uses such as construction operations and mining. In agriculture, the major concerns are the effects of pesticides, nutrients (commercial fertilizer and animal waste), salts, trace elements (e.g., selenium and arsenic), and sediment upon surface and ground water. National water resource assessments are showing increases in both the level and the geographic distribution of these contaminants.

SCS action is part of the U.S. Department of Agriculture (USDA) water quality initiative being implemented in response to the President's concern for the declining quality of the Nation's ground and surface water. The USDA initiative will help landusers to address a broad range of water quality concerns while maintaining a viable agricultural production system. It will emphasize coordinated efforts of the U.S. Departments of Agriculture, Interior, and Commerce and the U.S. Environmental Protection Agency. The initiative addresses technical assistance and education, research, data base development, and financial assistance.

The SCS 5-year plan of operations for water quality and quantity will focus on expanding and improving technical assistance utilizing the agency's extensive field delivery system through local soil and water conservation districts. This plan addresses program application, technology development, information, and assessment:

## *Program Application*

- Support demonstration projects to encourage the application of effective and efficient conservation practices that benefit water quality and quantity;
- Provide special assistance for selected agricultural watersheds or aquifer-recharge areas called "nonpoint source hydrologic unit areas" to address nonpoint pollution concerns identified by the process specified in section 319 of the Water Quality Act of 1987;[1]
- Provide technical assistance to ongoing regional (multi-State) projects addressing major water bodies that have nonpoint source pollution problems; and
- Strengthen aspects of ongoing programs that address water quality and quantity concerns.

## *Technology Development*

- Develop or improve conservation practices for treating and prevent-

ing agricultural water quality problems;

- Include in the conservation planning process techniques for determining water quality problems and solutions;
- Develop procedures to evaluate changes in water quality; and
- Train SCS personnel to assess and treat agricultural nonpoint source water pollution problems.

## *Information*

- Promote the voluntary approach to protecting water quality and quantity by helping rural and urban people understand important water resource concerns and practical ways to solve them together.
- Build awareness of technical expertise available from SCS and its cooperators.

## *Assessment*

Assessment of the water quality and quantity operations will consist of program evaluations to determine the overall effectiveness of the SCS effort to reduce nonpoint source pollution, and progress reporting to determine specific changes that result from conservation practices and technical assistance.

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1/ Public Law 100-4, February 4, 1987

# Introduction

Nonpoint source water pollution caused by construction, urban runoff, mining, forestry, and agriculture is a growing national concern. Surveys of the Nation's water resources show increasing levels of pesticides and nutrients (animal waste and manufactured fertilizer) and the trace element compounds that originate from these nonpoint sources. Surface runoff and deep percolation carry these contaminants into lakes and streams and through the soil profile into ground water aquifers.

Our concern for water quality is closely linked to our concern for water quantity. Water quantity affects water quality, vis-a-vis how quickly and in what concentrations pollutants enter streams, lakes, and aquifers. Water quality obviously affects the quantity of water available for human consumption, agriculture, and other uses. This is especially true in areas of sole-source aquifers and in water-short areas.

This plan of operations only concerns water quantity as affected by water quality. It does not address other water quantity concerns created by natural hazards such as floods and droughts and man-induced actions that affect the potential for flooding.

The approach that USDA is using to help American agriculture is consistent with the principles laid out in the February 9, 1989, Presidential Initiative for Enhancing Water Quality. [1]

The Soil Conservation Service (SCS), in implementing its 5-year action plan, will put strong emphasis on the following:

- Maintaining and building upon our strong relationships with the farming and ranching communities, through local soil and water conservation districts, to encourage a voluntary approach to solving resource problems.
- Continuing to ensure that SCS has well-trained conservation professionals and the necessary technology to help meet State and local goals for water quality and quantity.
- Promoting the use of economically feasible and practical conservation measures that protect water quality and quantity and the economic vitality of American agriculture.
- Coordinating water quality and quantity activities with private sector agriculture; appropriate Federal, State, and local agencies; conservation organizations; and urban communities.

The SCS role in addressing quality and quantity of water resources is defined by the following:

- USDA Regulation 9500-7 (Nonpoint Water Quality Policy), 12-5-86;
- SCS General Manual Section 401-WQP (Water Quality Policy), 5-18-87 and;
- USDA Regulation 9500-8 (Ground Water Policy), 3-8-88.

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[1] Water Quality Program Plan to Support the President's Water Quality Initiative, USDA, July, 1989.

# SCS Goal and Objectives

The goal of the SCS initiative in water quality and quantity is to provide the best available technology and information to rural and urban decision-makers so that they can respond voluntarily and independently to onfarm water quality concerns and State environmental requirements.

SCS objectives under this initiative are to:

- Increase technical assistance in areas with concerns about water quality and quantity and demonstrate available technology that will protect or improve water quality.
- Help State water quality management agencies and appropriate State soil and water conservation agencies develop and implement nonpoint source pollution management programs required by section 319 of the Water Quality Act of 1987.
- Evaluate pollutant loads (sediment, pesticides, nutrients, animal waste, salts, and trace elements) to determine the level of contribution from agricultural sources relative to other sources.
- Plan and implement a system of conservation practices to improve water quality and quantity affected by agricultural operations.
- Evaluate the effects of conservation systems and conservation practices in reducing or preventing agricultural nonpoint source pollution.

## *Action Items*

### *USDA Action Elements*

The SCS operations plan for water quality and quantity includes five action elements identified in the USDA Water Quality Program Plan: Demonstration projects, nonpoint source hydrologic unit areas, regional projects, technology development, and data base development.

### *Demonstration Projects*

The objective of these projects is to demonstrate the effectiveness of selected conservation practices in treating specific nonpoint source pollution problems and to promote the use of these practices in other areas. These projects will be implemented under the joint leadership of SCS and the Extension Service (ES).

There will be 24 projects, representing different sets of agricultural, soil, and geologic conditions. Each project will be in an area where agriculture's effects on water resources are a major local concern. For these projects, SCS and the landowner will identify critical nonpoint sources of contamination and establish specific treatment goals. These projects will utilize the best available information to implement cost-effective systems of conservation practices that combine efficient production with the producer's water quality goals.

Demonstration projects will follow existing project planning guidance and SCS field office technical guide procedures and will include interagency consultation and public involvement. The projects will be evaluated to

determine the effects that selected practices have on the water quality problem, the extent that improved practices are adopted, and the costs of practice implementation. Financial assistance for the demonstration projects will come from USDA's Agricultural Conservation Program and from other Federal and State programs.

## *Nonpoint Source Hydrologic Unit Areas*

In selected agricultural watershed or aquifer-recharge areas called "nonpoint source hydrologic unit areas," SCS, ES, and cooperating agencies will provide conservation planning and technology assistance that will help farmers and ranchers to meet State water quality goals without undue economic hardship.

An estimated 275 hydrologic units will be selected in areas where impairment of water quality by agricultural nonpoint sources is significant. In selecting these areas, SCS will use the State assessment and management reports developed under Section 319 of the Water Quality Act of 1987 and in consultation with appropriate State agencies and organizations. Selection will be on the basis of (1) significance of the agricultural sources of pollution; (2) relative predominance of such designated pollutants as pesticides, nutrients, and animals wastes; and (3) conformance with other water quality efforts.

Hydrologic unit planning and treatment will be a coordinated effort by Federal, State, and local agencies and will include public involvement. Each project will be evaluated to determine the effects of the conservation practices selected upon the unit water quality problems. What is learned about the effects of applied conservation practices on water quality will provide a basis for expanding application to other areas with similar water quality problems. Planning and implementation activities for hydrologic units will follow existing project planning guidance and SCS field office technical guide procedures.

## *Regional Projects*

SCS will accelerate ongoing technical assistance to multi-State regional projects that include water quality treatment objectives. Examples are the Gulf of Mexico Program, Chesapeake Bay Program, Land and Water 201, Great Lakes National Program, and the National Estuary Program. This assistance will further the development of nonpoint source pollution management plans, including systems of conservation practices, to meet the water quality objectives. Existing program or project organizations will coordinate these efforts.

As with the demonstration projects and the hydrologic units, the regional project effort will draw heavily on the experiences of ongoing water quality activities and available agricultural and economic research information. What is learned about the effects of conservation practices will be used in other problem areas.

## *Technology Development and Transfer*

Technology development and transfer are crucial elements of the agency's water quality and quantity objectives. Better technology means better technical assistance to farmers, ranchers, and policy officials and more efficient program management. Updating and strengthening the field office technical guide with the best available technical information is an essential part of technology development.

The primary technology objectives will be to (1) develop field- and State-office procedures that evaluate the effects of agricultural activities on water quality and quantity and (2) formulate conservation systems that improve water quality. The evaluation procedures will be linked to concurrent economic evaluations. To scope more accurately the effects of agricultural contaminants and the level of remedial action required, technology for determining the sources of pollutant loads in watersheds and aquifer recharge areas will be expanded. SCS will coordinate technology development with the USDA interagency research effort.

All levels of SCS will have a part in technology development and transfer:

- Field offices will use available technical guides, field trials, conservation experience, and cooperation with other agencies to provide the best available information to the farmer and rancher.
- Area and State staffs will assist in the technology transfer between field offices, and they will provide other appropriate technical guidance as it becomes available.
- National Technical Centers (NTC's) will provide technology-transfer support and advice to the State staffs.
- Technology development will be the responsibility of NTC and NHQ staffs, principally the National Water Quality Technology Development Staff located at Fort Worth, Texas.
- National technology development and transfer efforts will be coordinated with the appropriate divisions at NHQ.
- An NHQ Water Quality Technical Advisory Board will be established to provide guidance and set priorities for national technology development. The Board will be chaired by the Deputy Chief for Technology and will include the Deputy Chief for Programs, the Deputy Chief for Administration, an assistant chief, and the NTC directors.

## *Data Base Development*

Data base development and software development to integrate National Resources Inventory information, agrichemical data, and soil survey data are essential to the analysis of farm program policy. Enhancement of the SCS soils data base and development of the climatological database will support development and implementation of conservation practices to reduce agricultural nonpoint source pollution. Specific data base efforts under this 5-year plan will involve, but will not be limited to:

- Soils - pesticide interaction characteristics
- National Resource Inventory data
- National climatological data
- Soil survey data base for modeling
- Plant materials data base

## *Ongoing Programs*

USDA, The Department of the Interior, and EPA have joint programs that evaluate and help to remedy water quality problems from agricultural nonpoint sources. Conservation Technical Assistance (SCS), the Agricultural Conservation Program (ASCS), the Colorado River Salinity Control Program (ASCS) and the Great Plains Conservation Program (SCS) provide assistance on a farm-by-farm basis. The P.L.83-566 Small Watersheds Program (SCS), Clean Lakes and Wellhead Protection Programs (EPA), Rural Clean Water Program (ASCS), the Rural Abandoned Mines Program (SCS and the Office of Surface Mining), River Basin Program (SCS), and the Resource Conservation and Development Program (SCS) provide assistance on a project basis.

These programs help to improve water quality through the application of conservation practices for erosion control, management of agricultural chemicals, animal waste management, irrigation water management, field runoff reduction, water table management, and water conservation. The farmer or rancher, assisted by the conservation planner, voluntarily develops conservation systems and selects the combination of conservation practices that best meets the conservation objective and complements the farm or ranch operation. Through these programs, extensive conservation technology that is directly applicable to current water quality needs has been developed.

### *Conservation Technical Assistance*

Conservation planning and technical assistance focus upon the installation of agricultural activities that affect soil and water resources. Increased emphasis will be placed upon the water resource as farm conservation plans are developed or reviewed. Technical assistance will be directed toward the reduction of nonpoint source effects through revised field office technical guides and increased technology transfer of improved water quality protection procedures.

### *Great Plains Conservation Program*

Water quality practices will be included through the long-term contracting process as appropriate for aquifer protection, reduction of nonpoint source contamination of surface and groundwater resources, and conservation techncial assistance. Guidelines to expand the program into these areas will be available in fiscal year (FY) 1990.

## *Colorado River Basin Salinity Control*

The Colorado Salinity Program reduces salt leading to the Colorado River through irrigation water management. Program implementation is being expanded to include salt load reduction through range improvement and habitat management practices.

## *Special Water Quality Projects*

Future demonstration projects and nonpoint source hydrologic unit areas will be coordinated with ASCS special water quality projects and co-located wherever possible. Coordination procedures have been established at the National Headquarters level and will be extended to State and local offices before the fiscal year 1991 projects are processed.

## *PL83-566 Small Watersheds Program*

The Watershed Protection and Flood Prevention Act (PL83-566) provides an opportunity for local units of government to sponsor project action to address water quality and quantity problems. The major emphasis of the program, since its start in 1954, has been to provide erosion and flood control in upstream watersheds. A planned effort is underway to direct more attention to projects having a significant water quality improvement component.

Each year new projects are approved for planning. The number approved is limited so as not to generate a Federal installation cost in excess of $50,000,000 annually when averaged over a period of years. Project approval trends that indicate the emphasis on water quality improvement type projects are as follows:

| Fiscal Year | 1985 | 1986 | 1987 | 1988 | 1989 | 1990[1] |
|---|---|---|---|---|---|---|
| No. of Projects | 43 | 47 | 22 | 31 | 18 | 25 |
| Est. Fed. Install. Cost ($1,000)[2] | 159,016 | 77,444 | 34,370 | 41,911 | 49,975 | 50,000 |
| Water Quality Component ($1,000) | 3,290 | 6,206 | 815 | 13,035 | 11,161 | 12,500 |
| Pct Earmarked for WQ Improvement | 6 | 8 | 2 | 31 | 22 | 25 |

[1] FY 1990 figures are estimated.

[2] Total project installation costs are significantly higher as the average cost share rate is 60 percent Federal and 40 percent local.

Increased emphasis within the Small Watershed Program will be given to projects having a significant water quality component. Coordination of this program with the nonpoint source hydrologic unit areas will extend project planning and financial assistance resources.

## *Rural Abandoned Mine Program*

Increased emphasis in abandoned mined land reclamation will be placed upon areas where water resources are being impaired by mine or mine

tailing drainage. Water quality treatment will involve the increased use of wetlands, treatment of acid water pits, and other types of acid water treatment. Future RAMP projects will be coordinated with nonpoint source hydrologic unit areas.

### *Resource Conservation and Development*

Where RC&D areas coincide with areas identified as needing water quality improvement, program resources will be utilized to address the problems. Through the RC&D coordination process candidate areas will be identified and processed jointly with the nonpoint source hydrologic unit area activities.

### *River Basins*

The river basin study process will be utilized to identify nonpoint source water quality problem areas that can be addressed through the demonstration project and nonpoint source hydrologic unit area process. Existing basin study reports will provide resource information data bases for future project assessment and selection.

## *Coordination*

Coordination within the agency and with other agencies will be crucial to the success of SCS water quality efforts. The magnitude and complexity of the nonpoint source problem demands a high level of technology and program cooperation from all appropriate sources.

### *Agency*

The SCS National Water Quality Coordinating Committee coordinates the agency's national water quality activities, information and education efforts, and special study requests. The Committee will advise the Chief and senior staff on water quality issues, evaluate alternative issues, recommend solutions, and analyze progress. The committee includes representation from National Headquarters (NHQ) divisions, the national technical centers (NTCs), and the National Water Quality Technology Development Staff.

SCS State water quality action plans identify the resource information, training requirements, and field office technical guide revisions necessary to implement the national plan of operations. These State plans provide the framework for technical assistance necessary to support the project and onfarm elements of the SCS plan. The State plans should be reviewed periodically and coordinated with the NTCs to ensure that objectives are current and that the required technology is available.

### *Interagency*

Coordination between agencies and organizations at all levels is essential to an effective program for reducing nonpoint source pollution. To ensure coordination, SCS and the Extension Service (ES) chair the Water Quality Education and Technical Assistance (E&TA) Committee comprising USDA agencies, EPA, the U.S. Geological Survey (USGS), the National Oceanic and Atmospheric Administration (NOAA), National Association of Conservation Districts (NACD), and National Association

of State Conservation Administrators (NASCA). This committee will review and coordinate water quality objectives, the selection and implementation of hydrologic units, demonstration projects, and assessment activities.

Research needs and developments relevant to water quality treatment will be coordinated with other USDA agencies, EPA, and USGS to ensure that the most current information is available to field office personnel. The SCS research-needs committees at the State and national level will coordinate this effort.

The interagency Technical Integration Group co-chaired by USGS and ARS coordinates the development and exchange of technical information. This group includes representatives from research, natural resource, and regulatory agencies. It addresses technical data needs, research coordination, and data base utilization.

At the local level, SCS State and local offices will initiate coordination efforts with other Federal, State, and local agencies and with conservation organizations such as NACD and NASCA. The 1890 Land-Grant Universities and Tuskegee University will be invited to cooperate in research on the effects of water quality conditions and programs on limited-resource, small scale, and minority farms.

## *Training*

In fiscal year 1989, SCS assessed employee knowledge, skills, and abilities regarding water quality and quantity activities. The assessment report documents training needs in SCS and lists available SCS courses and outside training opportunities.

SCS will take the following actions to initiate development of agency training opportunities.

- Advise States of training opportunities that exist outside the agency. The national environmental coordinator will coordinate the training opportunities through the Water Quality Coordinating Committee and the National Employee Development Staff.
- Amend employee proficiency profiles to include training in water quality and quantity. This will be coordinated with the National Employee Development Staff.
- Develop new training sources and incorporate water quality and quantity into the existing training activities. The fiscal year 1989 training-needs assessment will provide guidance. This activity will be coordinated with the National Employee Development Staff.
- Implement training through the normal agency process.
- Indicate availability of training to staffs of State soil and water conservation agencies, State water quality agencies, soil and water conservation districts, and other appropriate agencies.
- List workshops, conferences, and interagency meetings in the quarterly SCS *Water News* .

## *Information*

SCS will inform USDA and SCS audiences of progress in our operations

to benefit water quality and quantity. We will:

- Tell how USDA and farmers and ranchers are working to improve water quality.
- Provide field offices with examples of successes in reducing water quality problems.
- Use success stories to promote voluntary action in the agricultural community.
- Encourage agencies, farm organizations, farmers and ranchers, and urban dwellers to work together to develop local solutions where local water quality problems exist.
- Explain the overall urban-rural-agricultural water quality picture.

## *National Role in Public Information*

The information effort will be in phases. Phase one was activated in fiscal year 1989. It will continue into fiscal year 1990 and target audiences within USDA and associated organizations. It includes the following projects:

- *Water News* newsletter for SCS field staff.
- Information materials on the use and content of the field office technical guide.
- Interagency workshops.
- Demonstration farms.
- Water quality poster.
- Redesign and reprint the Farm Bureau checklist that farmers can use to evaluate potential sources of pollution.
- Water quality exhibit

Phase two will address State and Federal agencies, the general public, and environmental groups. It will be planned and implemented in fiscal year 1990 by the information staff at NHQ.

## *SCS State Staff Role in Public Information*

The State information effort is key to the success of SCS operations regarding water quality and quantity. Many of the public information activities recommended in this plan are being addressed in States. The States are expected to continue their effort in public information and to tailor the information efforts to local concerns.

# *Public Involvement*

Public involvement will include:

- Input regarding the planning of conservation activities for demonstration projects, hydrologic unit areas, and regional projects.
- Contribution to the technology development process.

## *Program Evaluation*

SCS efforts to improve water quality and quantity will be evaluated to determine the extent that improved conservation practices are adopted, the costs of practice implementation, and the effectiveness of SCS operations in reducing nonpoint source water quality problems.

## *Progress Reporting*

The methods that SCS will use to measure progress in meeting the goal and objectives of this five-year plan will be developed for implementation by June 1990. Types of assessment criteria being considered are:

### *Effects of Land Treatment*

SCS will provide field offices with practical methods for estimating the effects of conservation practices, individually or collectively, on water quality and quantity. The methods used will utilize information on farm type, conservation systems or practices, soils, nutrients, pesticides, organic waste, salts, and sediment. Progress likely will be measured in terms of the following:

- Animal waste: Reduction in manure leaving the site (tons or 1,000 gallons of waste water).
- Nutrients: Reduction in nutrients leaving the site (quantity of ingredients leaving soil profile in runoff or leachate).
- Pesticides: Reduction in pesticides that go from the site into ground water or runoff (quantity of ingredients leaving site).
- Sediment: Reduction in soil erosion (tons).
- Water quantity: Acre-feet saved from diversion, pumping, or deep percolation.
- Salinity and trace elements: Reduction in salt leaving the site (tons).

In evaluating the effects of land treatment, SCS will require reports for at least two types of problem areas:

**Designated problem areas**: Any areas having a water quality or quantity problem identified in State "319" reports, demonstration projects, hydrologic units, regional projects, ASCS water quality projects, the Colorado Salinity Control Program, and others. The evaluation data for these areas must relate to the specific water quality and quantity concerns and the designated levels of improvement to be achieved.

**Potential problem areas:** A report is required also for any other area that has a significant potential for water quality and quantity problems as determined by State authorities. These areas will be specifically delineated by problem type and included as reference in the water resources maps or other information for the field office technical guide.

### *Technical Tools Developed*

The National Environmental Coordinator will evaluate the progress in developing technical tools following the schedule outlined in this 5-year plan. This will require working closely with NTCs, technology divisions, and the National Water Quality Technology Staff to establish yearly goals.

### *Staff Expertise*

Expertise can be estimated from national and State office records. To evaluate expertise, SCS will make two kinds of assessments:

- Proficiency in planning and implementation. This will be measured in terms of training acquired and performance in the field.
- Progress in filling technical gaps identified in the fiscal year 1989 assessment of employee knowledge, skills, and abilities.

### *Information Dissemination*

The public needs to be aware of SCS capability to solve problems of water quality and quantity. This kind of outreach will be measured in terms of news releases, newsletters, technical notes and papers, videos, slide tapes, workshops, and field days.

SCS State staffs will produce an annual progress report. The report will cover the efforts to correct water quality and quantity concerns recognized by the State water quality agency.

The first report, covering fiscal year 1989, will be a narrative report describing the kind and amount of assistance that SCS is providing in water quality and quantity.

The narrative reports for 1989 will be compiled in the first quarter of fiscal year 1990 so that a national summary can be completed by May 1990. Subsequent annual reports will be developed from the progress reporting system and will be more qualitative.

## *Limited Resource, Small Scale, and Minority Agriculture*

Limited resource, small scale, and minority farms will be important participants in the SCS water quality initiative. Because of the nature of rural domestic water supplies, farm families are highly susceptible to the effects of shallow aquifer contamination. To help these farmers address water quality and related problems, SCS will take the following actions:

- Give special consideration to demonstration projects and hydrologic units that address the specific water quality needs of limited resource, small scale, and minority farms.
- Coordinate with 1890 Land-Grant Universities and Tuskegee Univer-

sity to (a) evaluate the effects of nonpoint source pollution and the effectiveness of specific conservation practices and (b) recommend future actions by SCS to reach limited resource, small scale, and minority farms.

- Develop special outreach efforts.

# Schedule of Implementation

## *Program Implementation*

### *Demonstration Projects*

The 5-year action plan of the USDA water quality initiative includes a schedule of implementation for 24 demonstration projects. Eight projects per year will be initiated over a 3-year period, starting in fiscal year 1990. Each project will continue for 5 years and will entail the following:

- Planning (year 1)
- Implementation of conservation practices (years 1-5)
- Technology transfer by SCS, ES, and the Cooperative Extension System (years 2-5)
- Progress assessment by SCS and ES headquarters staff and by SCS NTC and State staff (years 1-5)

In fiscal years 1990-92, the interagency Water Quality Education and Technical Assistance Committee will select the eight projects per year from those proposed by the States. At least one of the eight projects will address problems of limited resource, small scale, or minority farms.

When a project is selected, interagency committees at the State level will draw up detailed operating plans. SCS funding for demonstration projects will be for technical assistance only. SCS will provide implementation data to State water quality agencies and will help the States monitor and evaluate pollution load reduction results. With few exceptions, SCS will not monitor water quality impacts on streams or aquifers.

**Responsible staff:** Land Treatment Program Division.

### *Nonpoint Source Hydrologic Unit Areas*

The 5-year action plan of the USDA water quality initiative includes a schedule of implementation for 275 hydrologic unit areas. In fiscal years 1990 and 1991, we will start 37 per year. Each project will continue for 3 to 5 years, depending on project complexity, and will entail the following:

- Planning (year 1)
- Implementation of conservation practices (years 1-3)
- Technology transfer (years 2-5)
- Progress assessment (years 2-5)

In fiscal years 1990-94 the interagency Water Quality Education and Technical Assistance Committee will select hydrologic units for project starts. A number of the projects selected will address water quality needs of limited resource, minority, and small scale farms.

When a project is selected, interagency committees at the State level will

draw up detailed operating plans. SCS funding for demonstration projects will be for technical assistance only. SCS will provide implementation data to State water quality agencies and will help the States monitor and evaluate pollution load reduction results. With few exceptions, SCS will not monitor water quality impacts on streams or aquifers.

**Responsible staff**: Land Treatment Program Division.

### *Regional Projects*

The 5-year action plan of the USDA water quality initiative includes technical assistance for treating nonpoint source pollution in agricultural areas within ongoing regional (multi-State) projects. These projects include such areas as the Great Lakes, Tennessee Valley, Chesapeake Bay, Puget Sound, and Gulf of Mexico. Plans for SCS technical assistance will be incorporated into the ongoing project operations documents for these areas.

In fiscal years 1990-94, SCS will:

- Review technical assistance requirements of regional projects with State conservationists and project managers.
- Continue technical assistance for the Chesapeake Bay, Great Lakes, Tennessee Valley (Land and Water 201), Gulf of Mexico, and Puget Sound Projects.
- Expand delivery of technical assistance to other ongoing projects.
- Review and select proposals for additional projects, for example, Estuaries of National Concern and Near Coastal Waters efforts.

**Responsible staff**: Land Treatment Program Division.

### *Ongoing Programs*

Assessment and treatment of nonpoint source water quality concerns will be a consideration of all ongoing SCS programs. Particular emphasis will be made in the areas of conservation technical assistance and project oriented programs. Coordination with ASCS will be expanded in all program areas addressing water resources to ensure that adequate techncial and financial assistance is provided.

### *Conservation Technical Assistance*

Conservation planning and technical assistance will include an increased emphasis upon the assessment of effects of conservation activities upon surface and groundwater resources.

**Implementation schedule**:

FY 1990:

- Incorporate appropriate water quality criteria and support data into the field office technical quide system.
- Include water resource response assessment within the conservation planning process for demonstration projects and nonpoint source hydrologic unit areas.

FY 1991:

- Increase water quality conservation planning and technical assistance to meet needs in active demonstration projects and nonpoint source hydrologic unit areas.

*Great Plains Conservation Program*

Expand GPCP to include contracts for water quality activities, including long-term agreements for aquifer protection that include practices to reduce contamination from nonpoint sources.

**Implementation schedule:**

FY 1990:

- Develop long-term agreements for water quality.
- Initiate GPCP agreements for water quality.

FY 1991:

- Increase contracting activity for water quality in all GPCP States.

*Colorado River Basin Salinity Control*

Installation of salinity reduction practices will reach full capacity on five CRBSC units. Project planning will continue on four units. Progress reporting at practice installation and salt load reduction will be operational for all projects.

**Implementation schedule:**

FY 1990:

- Reduction in salt load to the Colorado River will reach 92,445 tons.
- Planning completed on Moapa Valley Unit, Nevada. Project becomes operational.

FY 1991:

- Reduction in salt load to the Colorado River will reach 118,828 tons.
- Planning completed on Lower Gunnison Unit (#2), Montrose County, Colorado. Project becomes operational.

FY 1992:

- Reduction in salt load to the Colorado River will reach 152,531 tons.
- Planning completed on Price-San Rafael Unit, Utah. Project becomes operational.

FY 1993:

- Reduction in salt load to the Colorado River will reach 192,127 tons.
- Planning completed on Lower Gunnison Unit (#2), Delta County, Colorado. Project becomes operational.

FY 1994:

- Reduction in salt load to the Colorado River will reach 235,016 tons.

*Special Water Quality Projects*

Demonstration projects and nonpoint source hydrologic unit areas will be coordinated with ASCS special water quality projects to maximize the effectiveness of technical assistance and financial capabilities of SCS and ASCS. Co-location of projects will be encouraged to the maximum extent possible consistent with State 319 management plans and project objectives.

**Implementation schedule**:

FY 1990:

- Initiate planning and implementation of several co-located projects.

FY 1991:

- Increase number of co-located projects to 15.

FY 1992:

- Increase number of co-located projects to 50 percent of total.

Responsible staff: Land Treatment Program Division and ASCS Conservation Division.

*PL-566 Small Watershed Program*

Increased emphasis will be placed upon project planning for local implementation that addresses water quality problems. Planning and implementation of water quality demonstration projects and nonpoint source hydrologic unit areas will be coordinated with the Small Watersheds Program to maximize the effectiveness of both efforts.

**Implementation schedule**:

FY 1990-94:

- The long-range plan through 1994 is aimed at using 25 percent of the PL-566 program authority to address water quality problems.
- Serious water quantity problems exist in many rural areas in the country. Instructions were provided to field offices in 1989 on how rural water supply features can be added to new or existing small watershed projects to address this water quantity need. Historically, less than 1 percent of PL-566 projects contain a rural water supply component. We would expect the number of projects with rural water supply features to increase dramatically over the next 5 years.

*Rural Abandoned Mine Program*

Emphasis for new RAMP project selection will include strong consideration for water quality improvement opportunities. Of particular interest will be acid drainage reduction from abandoned mines and mine tailings.

**Implementation schedule**:

FY 1990-94:

- Ensure that all new RAMP contracts consider the impact of water quality.

- Impact on water quality will be a required item of the environmental assessment for all new contracts.

### *Resource Conservation and Development*

**Implementation schedule:**

FY 1990-94:

- Use the RC&D process to plan and install 170 rural community water quality improvement projects during fiscal years 1990 to 1994 as identified by the RC&D Councils.

### *River Basins*

Increase the utilization of river basin plans in concert with State 319 management plans to identify and evaluate potential water quality projects.

**Implementation schedule:**

FY 1990-94:

- Utilize the River Basin program to identify and evaluate 50 potential water quality projects for local implementation during fiscal years 1990 to 1994. These projects will represent about half of the cooperative river basin studies (CRBS) scheduled for completion.

  Cooperative River Basin Studies initiated will consider identified water quality problems for further planning and for proposing locally implemented actions and will develop technical tools that can be used for evaluating effects of non-point source controlling measures.

## *Technology Development and Implementation*

Major technology development and scoping of new technology will begin in fiscal year 1990. Intensity of development will increase in succeeding years, depending upon funding. Software development for water quality and quantity objectives will become part of SCS's computer assisted management and planning system (CAMPS). National Office staffs are responsible for final approval of nationally developed technology.

The technology development items discussed below are national efforts. When the items are ready for implementation, the NTCs will be responsible for transferring the technology to the SCS State offices; and the State offices, to the field offices. The national technology development effort does not preclude State and field offices working with other agencies to develop technology to solve local problems.

### *Resource Evaluation System*

SCS field offices need a resource evaluation system to determine how water quality and quantity are affected by current agricultural operations

and by the installation of a conservation practice or combination of practices. This information is necessary so farmers and ranchers can determine resource trade-offs under different remedial alternatives. Models such as CREAMS, GLEAMS, and PRZM can help make these analyses, but they are too difficult for field office operation. Recently developed technology for personal computers, such as "expert systems" and faster computer processors, potentially could help simplify the process of simulating complex resource systems.

The resource evaluation system will be coupled with an economics evaluation system to estimate effects on net returns to the farmer and rancher.

**Implementation schedule:**

FY 1990:

- Evaluate existing systems and recommend a model for State office use. The results of model simulations in high-risk areas of pollution from agricultural operations will be provided to field offices to improve planning and application of resource management systems.
- Begin scoping potential for field office resource evaluation system and necessary support data bases. Coordinate closely with other agencies such as ARS, ES, EPA, USGS, and universities.

FY 1991:

- Evaluate the use of "expert" systems and recently developed resource evaluation models. Decide on the direction to proceed, i.e. "expert" system, simulation model, or combination.

FY 1992:

- Begin developing the resource evaluation system for field offices.

FY 1993:

- Continue development. Field test prototypes.

FY 1994:

- Release field office resource evaluation system with training.

**Responsible staff:** National Water Quality Technology Development Staff with assistance of the National Engineering Technical Staff and in coordination with outside agencies.

## *Nonpoint Source Load Assessment by Hydrologic Units*

An analytical system will be developed to determine pollutant loads from various sources within a hydrologic unit (watershed or aquifer recharge areas). The system will assess the contribution from agricultural and other point and nonpoint sources to determine the level of pollutant reduction necessary to meet water quality goals for surface and ground water. The agricultural load reduction allocated back to the individual agricultural sources determines the water quality criteria of resource management systems.

**Implementation schedule:**

FY 1990:

- Field test simplified techniques such as mass balance with sensitivity analysis.
- Start scoping modeling techniques and field test potential models such as AGNPS (watershed) and RUSTIC (ground water).

FY 1991:

- Release simplified technique to State staff.
- Continue testing models and developing hydrologic unit nonpoint source assessment system. Assistance from other agencies will be crucial in development.

FY 1992-93:

- Refine simplified technique from field experience.
- Continue developing improved assessment system and working with other agencies.

FY 1994

- Release an improved hydrologic unit assessment system to State staffs.
- Begin a major training effort.

**Responsible Staff**: National Water Quality Technology Development Staff with assistance of the National Engineering Technical Staff and in coordination with outside agencies.

## *Formulating A Procedure for Incorporating Water Quality and Quantity in Conservation Planning*

SCS field offices also need a procedure for helping their clients address water quantity and quality concerns while maintaining a viable agricultural operation. This procedure would complement the onsite resource evaluation system, which will provide information on effectiveness of conservation practices in reducing nonpoint source pollutants. It will also complement the nonpoint source assessment of hydrologic units, which will determine the pollutant load reduction from agricultural sources. Such a procedure must consider the farm or ranch operation's economics as well as its offsite effects.

SCS will develop the procedure in 1990, field test it with the help of NTCs in 1991, and release it to the field offices with training in 1992-94.

**Responsible staff:** National Water Quality Technology Development Staff.

## *Pesticide Evaluation*

The soil-pesticide rating system released to States and field offices in fiscal year 1989 ranks pesticides according to their potential for leaching and for entering runoff under specific soil conditions. The rating system

needs refinement for more site-specific evaluations and for easy application in the field office. Techniques now available for site-specific ratings are time consuming and difficult to apply in the field office. Better techniques will require significant improvements in analytical processes and in our data bases for pesticide characteristics and for climate.

**Implementation schedule:**

FY 1990:

- Transfer the SCS-ARS pesticide characteristics data base to the National Water Quality Technology Development Staff and expand variables.
- Update and modify, as needed, the present soils and pesticide ratings with the results designed for electronic retrieval so that State offices can use them in field office technical guides.

FY 1991:

- Begin developing and testing field office computer software for making site-specific ratings of pesticides, including risk assessment.
- Continue updating the pesticide characteristics data base.

FY 1992:

- Release pesticide rating software to the state and field offices.
- Begin building pesticide evaluations into the resource evaluation model.
- Continue updating the pesticide characteristics data base and release as appropriate to the state and field offices.

FY 1993:

- Begin updating pesticide data base. Continue incorporating pesticides evaluation system into resource evaluation system.
- Maintain field office software released in FY 1992.

FY 1994:

- Continue updating pesticide data base and maintaining field office software.
- Release new pesticide management system as part of the resource evaluation system.

**Responsible Staff:** National Water Quality Technology Development Staff with cooperation from ARS, ES, EPA, and the National Agricultural Chemical Association (NACA).

## *Nutrient Management*

Several computer programs for nutrient management are available, but many can only be applied on a regional scale, do not consider all nutrient sources, or are too cumbersome for field office application. Nutrient management software and other management techniques must be adapted for field office use and tested before they are recommended.

**Implementation schedule:**

FY 1990:

- Evaluate available nutrient management software and field test. Nutrient data base may be necessary for the operation of the software.
- Complete rating of soils for phosphorus affinity.

FY 1991:

- Release software to field office and provide training.
- Release phosphorus-soils affinity rating to field offices.
- Develop data bases where appropriate.

FY 1992:

- Maintain and update field office software.
- Evaluate methods to refine software to fit into a resource evaluation model with cost/benefit analysis.

FY 1993:

- Begin incorporating nutrient management into resource evaluation software for field office.
- Maintain and update field office software.

FY 94:

- Maintain and update field office software.
- Release new nutrient management system as part of resource evaluation systems.

**Responsible Staff:** National Water Quality Technology Development Staff and National Soils Staff .

## *New and Revised Conservation Practices*

New conservation practices are being developed and some existing practices are being considered for revision to improve water quality and quantity. This will be a continuing process as we gain more experience and technical information.

**Implementation schedule:**

FY 1990:

- Implement the new conservation practices for nutrient and pest management. Start developing other practices such as those involving wetlands restoration and manure composting.
- Evaluate existing practices for effects on water quality and quantity and identify necessary adjustments.

FY 1991-94:

- Continue to evaluate changes to existing practices. Release new practices as approved by NHQ Technical Guide Committee.

**Responsible Staff**: NHQ and NTC staff specialists.

## *Economic Evaluations*

SCS field offices need economic procedures, and perhaps software, to evaluate the economic impact of different water quality management systems. Eventually, the resource evaluation system should be coupled to an economic model that will enable the farmer and rancher to compare resource effects and economic analysis of alternative management systems.

**Implementation schedule:**

FY 1990:

- Incorporate "plus-and-minus" framework that is being developed to facilitate decision making in conservation planning.
- Consider potential software to couple with resource evaluation software, and make recommendations for developing the software along with any data bases needed.

FY 1991:

- Continue development of economic software and field test.

FY 1992:

- Release economic software and provide training.
- Continue working with other resource evaluation efforts to include economics where appropriate.

FY 1993:

- Continue to work with efforts to incorporate economics in new technology.

FY 1994:

- Finish incorporating economics into software for evaluating resource management.

**Responsible Staff:** National Water Quality Technology Development Staff.

## *Protection of Private Rural Wells*

SCS needs a procedure for delineating the area influencing water quality in private, rural wells and for planning and implementing practices to protect the water supply. Several different procedures used to protect public wells could possibly be used for private, rural wells.

**Implementation schedule:**

FY 1990:

- Develop and field test a procedure for planning protection of private, rural wells.

FY 1991:

- Release to the field offices the guidance and practices needed for protecting private, rural wells.

FY 1992:

- Update guidance to State staff.

**Responsible Staff**: National Water Quality Technology Development Staff.

## *Agricultural Waste Management*

In many locations, animal waste is a major concern in protecting surface and ground water because of the explosive growth of confined-animal production, which increases animal density. Some of the standard SCS waste management systems may not be adequate in areas with high-density livestock and poultry operations and limited land resources. New waste management components as well as better planning and design tools will be needed to cope with these conditions.

**Implementation schedule:**

FY 1990:

- Finish revising the Agricultural Waste Management Field Manual.
- Implement additional waste management techniques, and begin developing improved planning and design tools.
- Increase efforts to incorporate animal waste management systems into Field Office Engineering Software (FOES).

FY 1991:

- Release the revised Agricultural Waste Management Field Manual.
- Release any new agricultural waste management systems, practices and improved design tools to the field.
- Complete FOES software on animal waste management.

FY 1992:

- Release FOES software and provide training.
- Provide training and updates on new animal waste management systems and practices.

FY 1993:

- Reassess the technical needs in agricultural waste management and available technology. Schedule additional technology development.

FY 1994:

- Continue developing new technology.

**Responsible Staff**: National Engineering Division, Ecological Sciences Division, and NTC staffs.

## *Water Management*

Water management and the effects of conservation practices on volume change in flow direction and plant consumption of water have a direct influence on the movement of pollutants. Pollutant delivery can be reduced by managing direction of rainfall movement, managing water consumption by plants, reducing loss of irrigation water by evaporation or leaching, and conserving available soil moisture. Considerable information is available on water management for production agriculture; however, the use of water management principles to improve water quality is not well understood in many locations.

**Implementation schedule**:

FY 1990:

- Document water management techniques available for dryland farming and quantify effects of conservation practices on the water budget in the plant root zone.
- Complete the merger of DRAINMOD and CREAMS models.

FY 1991:

- Develop guidance on water management for dryland farming in humid and semi-humid areas for field office use. Software may be needed.

FY 1992:

- Release to the field offices water management guidance with training.

FY 1993-94:

- Continue training on water management.
- Include water management technology in the resource evaluation system.

**Responsible Staff**: National Engineering Division with assistance from the National Water Quality Technology Development Staff.

## *Chemical Reclamation with Plants*

Consumption of excess water and nutrients from the root zone by vegetation such as grass and trees is effective in reducing leachates that end up in ground water. The use of plants to remove other chemicals or to more effectively manipulate the water budget in the root zone should be more fully evaluated. This information could readily be used by many field offices.

**Implementation schedule**:

FY 1990:

- Select plants and start field testing. Develop field office plant materials guide with present knowledge on the use of plants to modify water budgets and consume excess nutrients and toxics.
- Start expansion of plant materials data base.

FY 1991:

- Release field office plant materials guide.
- Expand field testing of candidate plants.
- Begin developing computerized procedure for downloading to field offices the plant materials information applicable to the local environment.

FY 1992:

- Continue field testing plants.

- Release procedure to download plant materials information to field office.

FY 1993:

- Continue field testing plants.

FY 1994:

- Update field office guide on plant selection.
- Continue field testing candidate plants.

**Responsible Staff**: NHQ Ecological Sciences Division, NTC's, plant materials centers, ARS, and universities.

## *Soils Data Base*

New technology will place additional demands on the soils data base. Models will need specific values for soil parameters rather than a range of values. Some models require additional parameters that are not in the present data base.

**Implementation schedule:**

FY 1990:

- Coordinate technology development to ensure proper use of soils data and to determine needs for new technology. Increase effort to identify new parameters needed and develop more precise values for current parameters so that computer modeling is useful in the field office.
- Determine the feasibility of including vadose zone data in the soils data base.

FY 1991:

- Begin expanding soils data base where appropriate.
- If feasible, begin to include vadose zone data in the soils data base.

FY 1992-94:

- Continue expanding the soils data base where appropriate to meet new technology development.

**Responsible Staff**: National Soil Survey Center

## *Climate Data Base*

SCS needs a climate data base that is readily available and can be downloaded to various computers, models, and other software.

Implementation schedule:

FY 1990:

- Begin developing climate data base to fit SCS needs.

FY 1991:

- Put data base into operation and update as needed. Provide training.

FY 1992-94:

- Continue updates and make improvements to fit software that is produced.

**Responsible Staff**: Water Supply and Forecasting Staff.

## *Saline Seep Control*

Saline seeps discharge high concentrations of saline salts into freshwater systems. Properly designed and installed reclamation techniques can reduce discharge of saline water. These techniques reduce subsurface water movement by increasing water consumption in recharge areas or by intercepting laterally moving subsurface water before it is contaminated. SCS has sufficient experience to transfer the technology to all areas where saline seeps are a concern.

**Implementation schedule**:

FY 1990:

- Begin developing saline seep control guidelines for reclamation.

FY 1991:

- Release guidelines to field and provide training.

FY 1992-94:

- Continue training effort and update guidelines as field experience is gained.

**Responsible Staff:** National Engineering Division, National Ecological Sciences Division, and NTC staffs.

## *Risk Assessment*

Health and safety standards are being established according to risk assessment. SCS will need to explore the use of risk assessment for rating pesticide and nutrient movement under different climate, soil, and crop conditions. Risk assessment may have application in other areas of water quality treatment and protection.

**Implementation schedule**:

FY 1990:

- Investigate risk assessment techniques and determine applicability to SCS activities. Identify data requirements for risk assessments.
- Develop plan to implement where appropriate.

FY 1991:

- As a minimum, field test risk assessments as part of site-specific pesticide evaluations.

FY 1992:

- Implement risk assessment techniques as part of other guides where appropriate.

FY 1993:

- Implement risk assessment in farm and ranch planning where appropriate.

FY 1994:

- Update field office software for risk assessment and improve associated data bases.

**Responsible Staff**: National Engineering Technical Staff with assistance from the National Water Quality Technology Development Staff.

## *Evaluating Trophic State of Lakes and Planning Remedies*

Under a current SCS contract, Duke University is developing a procedure for evaluating the trophic state of lakes and for devising remedial action plans. This procedure will determine the reduction of pollutant loads to lakes and reservoirs. Training will be developed when the procedure is available.

**Implementation schedule:**

FY 1990:

- Continue contract with Duke University and release draft document for field testing.

FY 1991:

- Release final document with software for project planning. Start training.

FY 1992:

- Continue training and software maintenance.

FY 1993:

- Determine potential for using the software within a geographic information system (GIS).

FY 1994:

- Continue GIS software development to include trophic models, if feasible.

**Responsible Staff**: Midwest NTC in coordination with National Water Quality Technology Development Staff.

## *Geographic Information System (GIS)*

GIS's are becoming an important resource planning tool. Federal and State resource management agencies are rapidly developing data bases to use in GISs. The layering of data base information in a GIS provides an opportunity to rapidly evaluate different resource management scenarios. The integration of resource simulation models into a GIS will improve the analytical capability of GIS processes. Some attempts are under way to merge resource models into GIS's.

**Implementation schedule:**

FY 1990:

- Continue work to incorporate AGNPS into a GIS system and field test. Field test the use of the GRASS GIS in two water quality demonstration projects.
- Develop the capability to link NRI data with other spatial and attribute data bases in the context of a GIS.

FY 1991:

- Explore the use of other water quality and quantity models in a GIS system and determine benefits of using AGNPS in GIS system.
- Assess the benefits of GRASS in water quality projects and make necessary adjustments.
- Test the use of the GIS to analyze NRI data in conjunction with EPA's STORET and River Reach File.

FY 1992:

- Release guidance to the field on use of GIS in water quality project planning and implementation.
- Continue developing model routines for GIS systems and field test.

FY 1993-94:

- Increase support to the field on use of the GIS in water quality project planning and implementation.
- Continue developing model routines for GIS systems and field test.

**Responsible Staff:** National Cartographic and Geographic Information Systems Division.

## *Water Quality Monitoring*

The agency will rely on the State water quality management agencies or other State water resource agencies to monitor water quality. SCS may have to do some limited monitoring, however, to help implement remedial actions, understand ecological functions, and conduct field trials. Technical transfer for water quality monitoring will depend on outside training courses and available technical material.

**Implementation Schedule:**

FY 1990

- Release through the NTCs to the State staffs a list of courses and technical material available.

FY 1991-94

- Update list of courses and technical materials

**Responsible Staff:** National Water Quality Technology Development Staff.

### *Training in New Technology*

Training State and field office staffs to use new technology will require various media. Some technology will require minimal training while other technology will require extensive class room instruction. The level and schedule of training will be determined as the new technology is developed.

**Responsible Staff:** NTC's with the assistance of National Employee Development Staff.

### *Technology Maintenance*

As new technology is released, maintenance of the products will be required, especially for data bases and computer software. Maintenance will become a major funding item as more products are developed. Technology maintenance must be scheduled as technology is released.

**Responsible Staff**: Deputy Chief for Technology

## *Training*

Some water quality training has already been provided, and several courses under development for other purposes are including water quality considerations. More training is necessary, however. SCS staff will be required to become more proficient in water quality issues and a primary translator of water quality concerns for the farm and ranch community.

**Implementation schedule**:

FY 1990:

- Establish a design team to determine courses needed. Develop a priority listing and begin developing two high-priority courses.
- Provide to states a list of non-SCS courses, special workshops, and conferences that provide specialized training. *Water News* will provide much of this information.
- Amend employee development profiles to include water quality and quantity training.
- Implement a one-year specialized training program at a university for SCS specialists.

FY 1991:

- Establish a design team to develop two additional courses for water quality and quantity.
- Conduct courses developed in FY 1990.
- Complete and release the employee development profiles.

FY 1992:

- Conduct courses developed in FY 90 and FY 91.

FY 1993:

- Conduct courses developed in FY 1990 and 1991.
- Reevaluate training needs and reestablish priorities for course design.

FY 1994:

- Develop courses and other training methods based on the FY 93 assessment.

**Responsible Staff**: National Employee Development Staff in coordination with the National Water Quality Technology Development Staff.

## *Information*

Information will be crucial to the success of the water quality initiative. The national information activities will support State and local information efforts.

**Implementation schedule**:

FY 1990:

- Complete Phase I of the national information campaign.
- Plan and activate Phase II.
- Encourage States to mobilize efforts to inform farmers and ranchers, associated agricultural interests, and the general public about the USDA and SCS initiative in water quality.

FY 1991-94:

- Conduct information at national level based on the evaluation conducted in FY 90.
- Continue State information efforts.

**Responsible Staff:** National Information Staff.

## *Program Evaluation*

Evaluation of the SCS water quality and quantity efforts will begin with the demonstration projects and the nonpoint source hydrologic unit areas to determine the extent of practice adoption, the costs of implementation, and the effects of conservation activities in reducing nonpoint source quality problems.

**Implementation schedule**:

FY 1990:

- Develop evaluation plans and coordinate them with program managers and technical staffs.
- Begin data acquisition.

FY 1991:

- Begin program evaluation.

FY 1992:

- Issue interim progress reports.

FY 1993-1995:

- Issue program evaluation reports.

**Responsible staff:** SCS Strategic Planning and Policy Analysis Staff at NHQ.

## *Progress Reporting*

Providing information to the public on the progress of the water quality initiative will be important to maintaining a voluntary program. Progress reporting will need to be conducted with minimal disruption of the field office operations.

**Implementation Schedule:**

FY 1990:

Prepare summary document describing SCS work, by State or region. Include type of water quality and quantity concern, funding sources, agencies involved, field office training accomplishments, information dissemination, and technology development. Publish by May 30, 1990.

Form a working group to plan reporting methods for field offices. Field test reporting methods.

FY 1991:

Activate reporting system.

Prepare second annual report based on narratives and reporting system.

FY 1992-94:

Prepare annual progress reports.

**Responsible Staff**: Program managers, technical managers and State conservationists.